

REMARKS

This communication is in response to the USPTO Office Action of April 5, 2007. Reconsideration of the application is respectfully requested in view of the following remarks. Claims 1-3 remain pending and claims 4-25 are added after this amendment is entered.

I. THE OFFICE ACTION

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) for allegedly being anticipated by U.S. Patent No. 5,296,854 to Hamilton et al.

Claim 3 stands rejected under 35 U.S.C. § 103(a) for allegedly being obvious over U.S. Patent No. 5,296,854 to Hamilton et al. in view of official notice taken by the USPTO alleging that it would have been obvious to have an additional head up display in the system for the purpose of displaying more images.

II. THE HAMILTON PATENT

Hamilton discloses a virtual image display (VID) system that could be used in helicopters, for example, during non-visual flight conditions such as night and/or adverse weather flight operations. The helicopter includes a movable virtual imaging subsystem and a cockpit having a predetermined canopy structure. The virtual imaging subsystem is operative to provide continuous virtual images of the external world during non-visual flight conditions. To generate virtual images of the external world during night flight operations, **a forward looking infrared (FLIR) imaging subsystem may be utilized to generate continuous, high-definition virtual images of the external world. Other imaging systems such as low-light television systems, radar systems, or other sensors that are capable of generating high-definition virtual images of the external world may be utilized as the virtual imaging subsystem in the Hamilton VID system.** The virtual imaging subsystem is slaved to the Hamilton VID system such that the field of view (FOV) of the virtual imaging subsystem is movable with respect to the helicopter to align the FOV of the FLIR subsystem to coincide with the optical axis of the visual system of the pilot of the helicopter. (see Hamilton, col. 4, lines 20-44 and FIG. 1)

Additionally, Hamilton identifies an RAH-66 helicopter as an exemplary helicopter. The RAH-66 helicopter H includes a transparent nose section NS that houses a gimballed virtual

imaging subsystem 20 and a cockpit CP having a predetermined canopy structure 60. (see Hamilton, col. 8, lines 47-49 and FIG. 2)

Moreover, the virtual imaging subsystems 20 used in the Hamilton VID system 10 are referred to as well known to those skilled in the art. For example, to generate virtual images of the external world during night flight operations, a FLIR imaging subsystem 20 is the preferred means, based upon the state of present day technology, of generating continuous, high-definition virtual images of the external world during night flight operations. The FLIR imaging subsystem 20, like common FLIR systems, senses differences in thermal radiation emitted by the various elements of the external world within the FOV of the FLIR sensors and generates signals representative of detected thermal radiation differences that are subsequently processed to provide continuous, high-definition virtual images of the external world within the FOV of the FLIR imaging subsystem 20. The FLIR imaging subsystem 20 may be selectively operated to generate hot and cold thermally differentiated images as black and white contrasts or vice versa, depending upon such factors as flight conditions, mission requirements, etc. (see Hamilton, col. 9, lines 3-39 and FIGs. 1 and 2)

III. THE ART REJECTIONS

A. Claims 1 and 2 are Patentably Distinct from Hamilton.

Hamilton does not disclose or fairly suggest a system for increasing pilot situational awareness that includes “a navigational component that determines one or more of **aircraft location and attitude**” as recited in claim 1. Rather, Hamilton discloses a virtual image display system 10 for use in piloting aircraft that includes a video display subsystem 40 and “means 50 for sensing the **attitude and position of the video display subsystem 40** with respect to a predetermined aircraft coordinate system” (col. 7, line 64 - col. 8, line 2). The video display subsystem 40 transmits video images to the pilot (col. 8, lines 8-9). The aircraft coordinate system is a polar coordinate system with its origin defined by a design eyepoint for the pilot when seated in the cockpit (col. 5, lines 1-53; FIGs. 4A-B). Notably, the Hamilton sensing means 50 determines attitude and position of the video display subsystem 40 within the aircraft cockpit rather than parameters providing location or attitude information for the aircraft.

Moreover, Hamilton does not disclose or fairly suggest a system in which virtual images are based at least in part on the aircraft location and aircraft attitude determined by a navigational component as recited in claim 1. Rather, Hamilton discloses a virtual image display system 10 with a virtual imaging subsystem 20 that uses sensors to detect the real external world and generate images corresponding thereto (col. 4, lines 29-39; FIG. 1). Hamilton's examples of such virtual imaging subsystems and sensors include forward looking infrared (FLIR), low-light television, and radar. Notably, the so-called virtual images in Hamilton are based on dynamically sensing information reflecting the real external world in which an aircraft is flying rather being based on parameters providing location or attitude information for the aircraft that are determined by a navigational component.

Similarly, Hamilton does not disclose or fairly suggest a method for mitigating problems associated with spatial disorientation that includes "computing **aircraft location and attitude**" or "computing a displayable image ... based at least in part on the [computed] aircraft location and attitude" as recited in claim 2. Therefore, Claim 2 is distinguished from Hamilton for the same reasons provided above distinguishing claim 1.

Based on the foregoing, claims 1 and 2 are patentably distinct from Hamilton. Accordingly, the Applicants respectfully submit that claims 1 and 2 are currently in condition for allowance.

B. Claim 3 is Patentably Distinct From The Combination of Hamilton and Official Notice Taken by the USPTO Alleging That it Would Have Been Obvious to Have an Additional Head Up Display.

First, Hamilton does not disclose or fairly suggest a head up display that includes "a navigational unit for determining an **aircraft location**" or "an attitude unit for determining an **aircraft attitude**" both of which are recited in claim 3. Moreover, Hamilton does not disclose or fairly suggest a system in which virtual images are based at least in part on the aircraft location and aircraft attitude determined by the navigational unit or the attitude unit as recited in claim 3. Therefore, Claim 3 is distinguished from the combination of Hamilton and the official notice taken by the USPTO for the same reasons provided above distinguishing claim 1.

Additionally, it is not appropriate for the USPTO to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant

and unquestionable demonstration as being well-known (MPEP § 2144.03). For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art (MPEP § 2144.03, citing In re Eynde, 480 F.2d 1364 (CCPA 1973) and In re Ahlert, 424 F.2d 1088 (CCPA 1970). See also In re Zurko, 258 F.3d 1379 (Fed. Cir. 2001)).

The Applicants respectfully traverse the official notice taken by the USPTO alleging that “it would have been obvious of one having ordinary skill in the art at the time of the claimed invention to have an additional head up display in the system for the purpose of display[ing] more images” (4/5/07 O.A. at page 3, item 6) because the statement associated therewith is directed toward specific technological features of aircraft display systems. Moreover, the statement is not capable of instant and unquestionable demonstration as being a well-known fact. Accordingly, the Applicants respectfully request that the USPTO withdraw rejection of claim 3 on these additional grounds alone or provide documentary evidence in the next Office Action disclosing information associated with the statement.


Based on the foregoing, claim 3 is patentably distinct from the combination of Hamilton and the official notice taken by the USPTO. Accordingly, the Applicants respectfully submit that claim 3 is currently in condition for allowance.

CONCLUSION

Based on the foregoing remarks, the applicants believe that all claims in this application (i.e., claims 1-25) are now in condition for allowance and an indication to that effect is earnestly solicited. Furthermore, if the USPTO believes that additional discussions or information might advance the prosecution of this application, the USPTO should feel free to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

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